What is claimed is:

1. A polarization independent optical filter comprising:

a planar waveguide layer;

a grating layer adjacent to said planar waveguide layer wherein said grating layer comprises a plurality of diffraction elements patterned as a two-dimensional array exhibiting periodicity in first and second orthogonal directions, each diffraction element comprising a longitudinal pillar having a maximum lateral dimension of less than 600 nanometers.

2. The polarization independent optical filter according to claim 1 wherein said waveguide layer is formed overlying a substrate layer.

3. The polarization independent optical filter of claim 1 wherein said waveguide layer and said grating layer are composed of a transparent dielectric material and the index of refraction of said waveguide layer is greater than the effective index of said grating layer.

4. The polarization independent optical filter according to claim 1 wherein the periodicity in said first and second orthogonal directions is equal.

5. The polarization independent optical filter according to claim 1 wherein said plurality of diffraction elements are circular pillars.

6. The polarization independent optical filter according to claim 1 wherein the spacing between successive diffraction elements in both orthogonal directions is less than a wavelength of the light to be filtered.

7. The polarization independent optical filter according to claim 2 wherein said substrate is composed of a transparent dielectric material having an index of refraction less than the refractive index of said waveguide layer.

8. A method of making an optical subwavelength resonant gratin filter comprising the steps of:

providing a workpiece comprising a waveguide layer, an adjacent unpatterned grating layer and a moldable layer overlying the grating layer;

providing molding surface comprising one or more projecting features patterned to form a periodic array;

pressing the molding surface against the moldable layer to produce a pattern of reduced thickness regions, in the moldable layer;

removing material from the reduced thickness regions to expose the grating layer; and

processing the exposed grating layer to form a periodic grating array.

9. The method of claim 1 wherein the molding surface is patterned to produce reduced thickness regions in the moldable layer forming an array of projecting pillars.

10. The method of claim 1 wherein the molding surface is patterned to produce reduced thickness regions in the moldable layer forming an array of recessed holes.

11. The method of claim 1 wherein the molding surface is pressed against the moldable layer by pressing with a mechanical press.

12. The method of claim 1 wherein the molding surface is pressed against the moldable layer by pressing with pressurized fluid.

13. The method of claim 1 wherein the molding surface is pressed against the moldable layer by pressing with electrostatic force.

14. The method of claim 1 wherein the molding surface is pressed against the moldable layer by pressing with magnetic force.

15. The method of claim 1 wherein the grating layer has a thickness of 200 nanometers or less.

16. The method of claim 9 wherein the pillars have a maximum lateral dimension of less than 600 nanometers.

17. The method of claim 10 wherein the holes have a maximum lateral dimension of less than 600 nanometers.

18. The method of claim 1 wherein the array is spaced apart by a periodic spacing in the range 200 nanometers to 1.2 micrometers.